UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte MING-REN LIN, ZORAN KRIVOKAPIC, HAIHONG WANG and BIN YU

Appeal No. 2006-1302
Application No. 10/614,051

ON BRIEF

Before FRANKFORT, OWENS and NAPPI, *Administrative Patent Judges.*
OWENS, *Administrative Patent Judge.*

DECISION ON APPEAL

This appeal is from a rejection of claims 1-20, which are all of the pending claims.

THE INVENTION

The appellants claim a method for making a FinFET device having a doped fin structure. Claim 1 is illustrative:

1. A method for forming FinFET devices, comprising:

forming a first fin structure, a source region, and a drain region in a first area of a wafer;

forming a second fin structure, a source region, and a drain region in a second area of the wafer;

forming a phosphosilicate glass layer on the first area and the second area;

removing the phosphosilicate glass layer from the second area;

forming a boron silicate glass layer on the first area and the second area;

annealing the first area and the second area, the annealing causing the first fin structure, source region, and drain region of the first area to be doped with phosphorus and causing the second fin structure, source region, and drain region of the second area to be doped with boron;

removing the boron silicate glass layer from the first area and the second area; and

removing the phosphosilicate glass layer from the first area.

THE REFERENCES

Frenette et al. (Frenette)	5,770,490	Jun. 23, 1998
Wu et al. (Wu)	2004/0048424	Mar. 11, 2004
(US patent application publication)		(filed Sep. 5, 2002)

THE REJECTIONS

The claims stand rejected as follows: claims 13, 14 and 20 under 35 U.S.C. § 102(e) as anticipated by Wu, and claims 1-12 and 15-19 under 35 U.S.C. § 103 as obvious over Wu in view of Frenette.

OPINION

We reverse the aforementioned rejections and remand the application to the examiner.

During patent prosecution, claims are to be given their broadest reasonable interpretation consistent with the specification, as the claim language would have been read by one of ordinary skill in the art in view of the specification. *See In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989); *In re Sneed*, 710 F.2d 1544, 1548, 218 USPQ 385, 388 (Fed. Cir. 1983); *In re Herz*, 537 F.2d 549, 551, 190 USPQ 461, 463 (CCPA 1976); *In re Okuzawa*, 537 F.2d 545, 548, 190 USPQ 464, 466 (CCPA 1976). Limitations, however, are not to be read from the specification into the claims. *See In re Prater*, 415 F.2d 1393, 1405, 162 USPQ 541, 551 (CCPA 1969).

The appellants' specification indicates that the fin structures (310, 320) are the structures between the source and drain regions (330, 340) (¶ 0019; figures 3B and 7B), and in independent claims 1 and 7 the fin structures are recited as separate components from the source and drain regions. Hence, the broadest reasonable interpretation, in view of the appellants' specification, of "fin structures" in the appellants' claims is that the fin structures are between the source and drain regions. Independent claim 13, which claims the fin structures, does not recite source and drain regions. We interpret "fin structures" in

that claim consistently with the specification and the other claims.[1]

Wu discloses a method for forming a FinFET structure on a semiconductor substrate wherein the center portion of a FinFET structure is covered with a gate structure and then the exposed portions of the FinFET structure are doped to form source and drain regions (¶¶ 0010 and 0018-0019).[2] Wu does not disclose that the portion of the FinFET under the gate structure, which corresponds to the appellants' fin structure, is doped.

The examiner argues that Wu's source and drain regions are part of the fin structure (answer, page 11). That argument is not well taken in view of our claim interpretation as set forth above.

The examiner has not established that Wu discloses, or would have fairly suggested to one of ordinary skill in the art, doping the fin structure, and the examiner does not rely upon Frenette for any disclosure that remedies this deficiency in Wu. Accordingly, we reverse the examiner's rejections.

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[1] The appellants' arguments are consistent with this claim interpretation (brief, pages 5-7, 13 and 15).

[2] This method differs from the appellants' disclosed method in that in the appellants' method, the fin structure and the source and drain regions are doped and then a gate structure is formed over the fin structure (specification, ¶¶ 0019-0024).

Remand

In the response to arguments section of the examiner's answer, the examiner, for the first time on the record, presents an argument that Stanley Wolf and Richard N. Tauber, *Silicon Processing for the VLSI Era - Volume 1, Process Technology* 263-64 (Lattice Press 1986), provides evidence that Wu's dopants inherently laterally diffuse into the fin structure (answer, page 14). Because this reference and argument were not relied upon by the examiner when making a rejection, they are not properly before us. *See In re Hoch*, 428 F.2d 1341, 1342 n.3, 166 USPQ 406, 407 n.3 (CCPA 1970).

We remand the application for the examiner to consider reopening prosecution and setting forth a new ground of rejection wherein the examiner presents the inherent diffusion argument and uses Wolf as evidence in support of that argument.

DECISION

The rejections of claims 13, 14 and 20 under 35 U.S.C. § 102(e) over Wu, and claims 1-12 and 15-19 under 35 U.S.C. § 103 over Wu in view of Frenette, are reversed. The application is remanded to the examiner.

REVERSED and REMANDED

CHARLES E. FRANKFORT)
Administrative Patent Judge)
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TERRY J. OWENS) BOARD OF PATENT
Administrative Patent Judge) APPEALS
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ROBERT E. NAPPI)
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